

REMARKS

Claims 13 and 14 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the Applicants regard as their invention. Claim 15 has been incorporated into Claim 13 and cancelled. The non-elected claims have also been cancelled.

Applicants have amended Claim 13 to clarify the present invention and remove the rejection based on 35 U.S.C. §112.

As now claimed in amended Claim 13, Applicants' heat pipe cooler is one that includes a heat receiving plate with first and second opposite surfaces, the heat receiving plate being adapted at the first surface to contact an element which generates heat and is to be cooled. A plurality of heat pipes are fixed to the second surface of the heat receiving plate for thermal conduction, the plurality of heat pipes being upstanding with respect to the heat receiving plate, and the plurality of heat pipes being sealed at opposite end portions. A plurality of parallel heat radiating plates are fixed to the plurality of heat pipes at positions along the plurality of heat pipes toward an end thereof, the parallel heat radiating plates extending substantially parallel to, and having a shape corresponding to the heat receiving plate. A distance between the heat receiving plate and one of the parallel heat radiating plates which is located adjacent the heat receiving plate is substantially greater than a distance between two adjacent the parallel heat radiating plates. A ventilation duct having an air inlet and air outlet surrounds the parallel heat radiating plates and defines a passage for air through a gap between the parallel heat radiating plates, and a fan is provided to produce a current of air through the duct. This arrangement is not taught or suggested in the references cited.

Reconsideration and removal of the rejection of Claim 13 as obvious under 35 U.S.C. §103 in view of Sugawara ('270) and of Claim 14 as obvious in view of a combination of Sugawara ('270) and Inoue et al. ('789) or Ishida ('258) are respectfully requested in view of the present amendments to the claims and the following remarks.

The abstract of Sugawara ('270) refers to a heat pipe 2a, 2b or 2c mounted on a heat generating body 1, the heat pipes having cooling fins 3 designed in a cooling air flow. While the distance between the cooling fins differs depending on the location of the heat pipe, it appears that the distance between a fin and the body 1 is greater than the distance between adjacent fins. No heat receiving plate is shown in Sugawara ('270).

In present Claim 13, however, the heat pipe cooler has a plurality of heat pipes fixed to a second surface of a single heat receiving plate, contrary to the Sugawara construction. Also, amended Claim 13 requires that the parallel heat radiating plates have a shape corresponding to the heat receiving plate, as described at page 5, lines 25 to 32, of the present specification. Such is not taught or suggested in Sugawara ('270).

The Inoue et al. and Ishida references, while showing fins attached to a plurality of heat pipes, do not provide the missing elements of the Sugawara ('270) reference, and do not render Applicants' amended Claim 13 or Claims 14 and 16 obvious.

In view of the aforementioned amendments and accompanying remarks, claims 13 and 14, as amended, and dependent Claim 16 are believed to be in condition for allowance, which action, at an early date, is requested.

U.S. Patent Application Serial No. 09/044,030

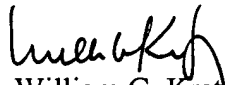
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP



William G. Kratz, Jr.
Attorney for Applicant
Reg. No. 22,631

WGK/nrp
Atty. Docket No. **980400**
Suite 1000, 1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



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Enclosures: Version with markings to show changes made

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IN THE CLAIMS:

Amend claims 13 and 14 as follows:

13. (Twice Amended) A heat pipe cooler, comprising:

a heat receiving plate having first and second opposite surfaces, said heat receiving plate being adapted at said first surface to contact an element which generates heat and is to be cooled;

[at least one heat pipe having] a plurality of heat pipes fixed to said second surface of said heat receiving plate for thermal conduction, said [at least one heat pipe] plurality of heat pipes being upstanding with respect to said heat receiving plate, and said [at least one heat pipe] plurality of heat pipes being sealed at opposite end portions thereof;

a plurality of parallel heat radiating plates fixed to said [at least one heat pipe] plurality of heat pipes at positions along said [at least one heat pipe] plurality of heat pipes toward an end thereof, said parallel heat radiating plates extending substantially parallel to, and having a shape corresponding to said heat receiving plate;

a distance between said heat receiving plate and one of said parallel heat radiating plates which is located adjacent the heat receiving plate being substantially greater than a distance between two adjacent said parallel heat radiating plates;

a ventilation duct having an air inlet and air outlet surrounding said parallel heat radiating plates and defining a passage for air through a gap between said parallel heat radiating plates; and

a fan producing a current of air through said duct.

14. (Amended) The heat pipe cooler according to claim 13, wherein each of said opposite end portions of said [at least one heat pipe] plurality of heat pipes passes through said plurality of parallel heat radiating plates.